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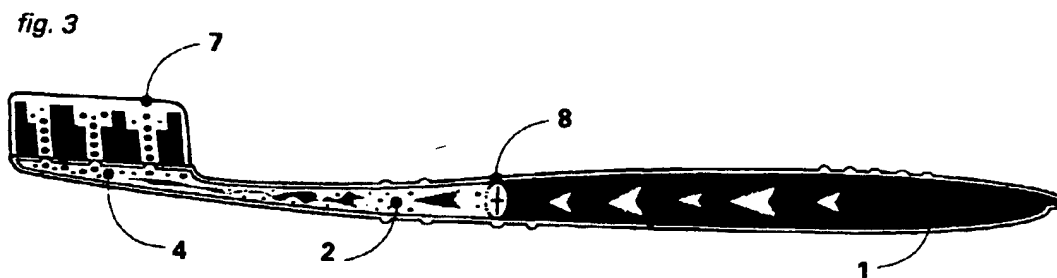
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GB 2343619 A GB 2329110 A  
GB 2290702 A WO 1999/023911 A  
CA 001257061 A US 6095710 A  
US 5313909 A US 4255524 A

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(54) Abstract Title: **Toothbrush with cleaning liquid stored in the handle.**

(57) A toothbrush, with cleaning liquid stored in the handle, is designed to accommodate its own quantity of liquid to work in unison with the life span of the bristles in the brush head. Each single application of liquid is controlled by applying pressure to the handle 1, which is made of a pliable plastics material. The liquid is forced through a filter valve 8 which controls the flow of liquid into the neck and head chamber 2 and through the outlets set within the bristles of the brush head 4. The brush may have a window set into the handle which allows for monitoring of the available liquid. A gradual colour change would enable brush/bristle life detection. A protective plastic cap 7 may be fitted to keep the bristles and brush-head free from dirt and damage.



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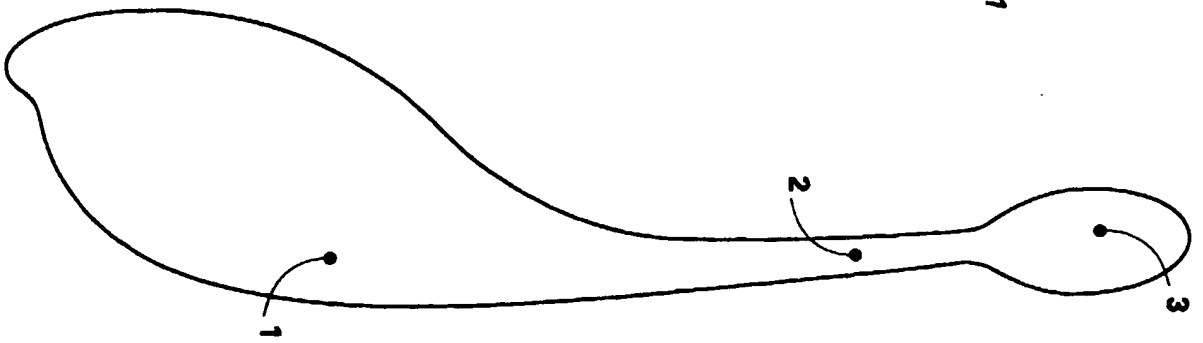


fig. 1

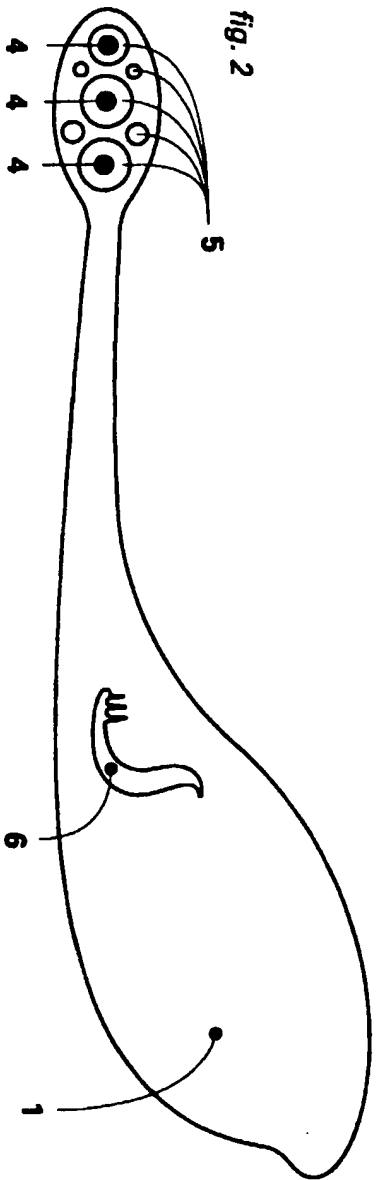


fig. 2

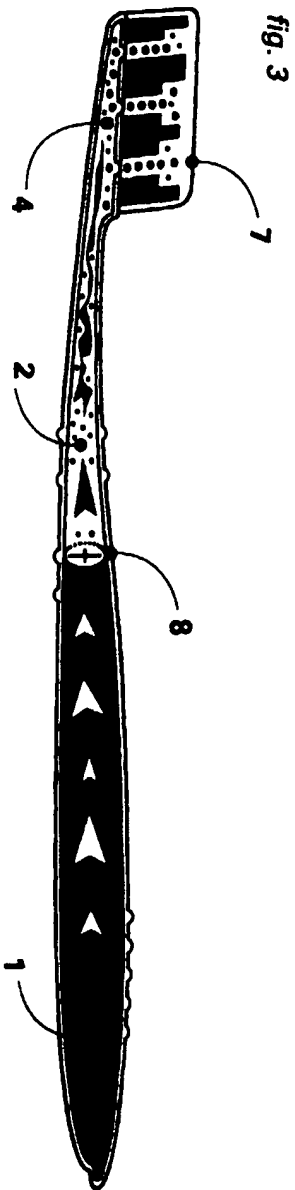


fig. 3

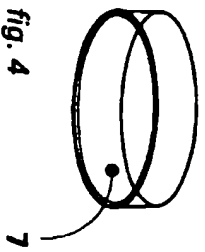


fig. 4

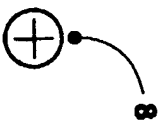


fig. 5

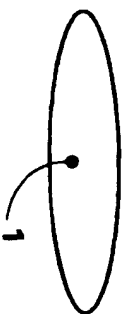


fig. 6

## TOOTH BRUSH

The invention relates to a tooth brush that contains its own life spans worth of cleaning liquid. When pressure is applied to the handle, liquid is sent through a filter valve, and into the bristles of the brush head.

Many tooth brushes exist, but their form and function doesn't enable the user to clean solely with the brush. The issue of two separate products required to work together regularly on a daily basis can lead to a messy and fussy end product. Running out of tooth paste, forgetting when its best to renew your brush, annoying tooth paste marks around the sink area, frustrating squeezes in the middle of the tube. A few examples of the issues we have all faced during our conquest to keep healthy and clean teeth. The disadvantages mean that portability and the ease of use becomes very limiting and disjointed, probably adding to the boring stigma attached to the duty of cleaning our teeth.

An object of this invention is to provide a handy, all in one product which allows with ease the ability to clean your teeth, wherever you are and whenever you want. Creating a space saving, mobile brush which will enable the user to re-think about the way we brush.

Accordingly, this invention provides a combined tooth brush and liquid cleaning agent that would be situated in the tank of the brush handle. By creating a pump action either by applying pressure or by activating a mechanism, the liquid would be forced to travel through a stopper valve positioned at the base of the brush neck. The valve would allow a correct amount of liquid agent for one brushing session to pass through the brush neck to a series of filter holes, positioned within the brush head. A colour change of liquid during the brushes life span tells the user that it has one more week of brush life available. Working together as a partnership, the brush and liquid will enable you to monitor the quality and life of your brush. Giving the user a healthier, easier control!

Preferably the brush would be made of plastics material, allowing for an economic, versatile product that could be manufactured quickly and would be able to perform the necessary functions as described above. By containing the correct quantity of liquid cleaner for 672 separate brushes, the invention would be a totally self-contained, dual purpose product. Enabling up to eight weeks of brushing, three times per day.

2 .

A preferred embodiment of the invention will now be described with reference to the accompanying drawing in which:

Figure 1 shows an exterior view of the whole tooth brush;

Figure 2 shows an interior view of the whole tooth brush, this consists of a window for monitoring brush life and the liquid filter holes positioned in the brush head;

Figure 3 shows a side view of the brush, and distribution of cleaning liquid from the brush handle to the bristles;

Figure 4 shows the brush heads protective cap;

Figure 5 is a front view of the liquid filter valve;

Figure 6 is a rear view of the brush, showing the convex shape of the brush handle.

As shown in Figure 1, the exterior view of the tooth brush comprises of a tubular structure that forms a handle<sup>1</sup>, neck<sup>2</sup> and head shape<sup>3</sup>.

Figure 2 shows the inside view of the whole tooth brush, which comprises of the liquid window<sup>4</sup> used for monitoring liquid/brush life and the brush head filters<sup>5</sup>, which distributes the liquid to various points within the bristles<sup>6</sup>.

Figure 3 The flow of liquid is activated by applying pressure to the handle<sup>1</sup>, the pressure forces the liquid through the filter valve<sup>7</sup>, into the neck<sup>2</sup> and head chamber, where the liquid flow enters the brush head filters<sup>8</sup>.

Figure 4 shows the protective cap, this is made from a plastics material and can click on and off the brush head. This will enable the brush to become portable, clean and hygienic to use.

Figure 5 shows a front view of the liquid stopper valve<sup>9</sup>, this simple mechanism is made from a pliable plastic material. The cross cuts in the centre of the stopper allow the liquid to pass from the handle through the stopper valve, and into the neck/head chamber. On releasing pressure to the handle, the valve will be drawn closed by the vacuum created and prevent any further flow of liquid cleaner entering the neck and brush head.

Figure 6 shows a rear view of the tubular tooth brush. The handle made of a durable, and pliable plastics material will contain enough liquid cleaner for 8 weeks of brushing.

**CLAIMS**

1. **A toothbrush including a cleaning liquid stored within the brush, dispensed by an applied pressure to the handle the liquid is filtered to the bristles of the brush-head so that each single application of liquid works in unison with the life span of the bristles of the brush.**



Application No: GB 0211181.3  
 Claims searched: 1

Examiner: Philip J Roe  
 Date of search: 7 October 2002

**Patents Act 1977  
 Search Report under Section 17**

**Databases searched:**

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:  
 UK CI (Ed.T): A4K KBA  
 Int CI (Ed.7): A46B 11/00, 11/02  
 Other: Online: EPODOC, WPI, JAPIO

**Documents considered to be relevant:**

Category	Identity of document and relevant passage	Relevant to claims
X	GB 2343619 A (ELSENDER) Whole document	1
X	GB 2329110 A (RICKETT) Whole document, especially figures 1 & 2, and Page 5 para 4	1
A	GB 2290702 A (WOOLDRIDGE) Whole document	-
X	US 6095710 (AYENI) Whole document	1
A	US 5313909 (TSENG) Whole document, especially column 4 lines 14 - 31.	-
X	US 4255524 (GREEN) Whole document	1
X	CA 1257061 (BOUTHILLIER) Whole document	1
X	WO 99/23911 (GIELEN & GIELEN) Whole document	1

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